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FAX COVER SHEET

DEPARTMENT OF SURGERY

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FROM: Richard Jungshans, MD

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Richard P. Junghans, Ph.D., M.D.
Chief, Division of Surgical Research
Associate Professor of Surgery and Medicine
Director, Biotherapeutics Development Lab

January 25, 2005

Director
United States Patent and Trademark Office
Washington, DC 20231

Attn: Dr Larry Helms, Examiner

RE: "Antibodies as chimeric effector cell receptors against tumor antigens" #10/006,773

Dear Dr Helms:

I am enclosing materials related to the USPTO action dated 12/28/04. This submission complies with the 30-day requirement for applicant response without incurring financial penalty.

Thank you for your time and consideration.

Sincerely,

Richard P Junghans, PhD, MD

Enclosure.

RPJ/sf

Date: January 25, 2005

RESPONSE TO DETAILED ACTION

1. Terms will be amended to Amethod@ instead of Ause@. A clean copy of the claims are appended.
2. We have attached a listing of Figures modified with sequence references attached.

ELECTIONS/ RESTRICTIONS

3. We elect Group II, with traverse. In item #4., we argue that these are not four groups.
4. The four groups as outlined are related by use of a chimeric gene structure in which they are distinguished by sequence of the antibody region. Three bind to one antigen (PSMA) and one binds to another antigen (GD3). We view these as specific analogous agents from this laboratory to be covered as separate sub-claims under a single patent application.
5. For response, see 4.

We submit the following amended Figures to include sequence references.

Fig.3 (presently amended) shows diagram and DNA sequence of a chimeric sFv IgTCR, including the CD8α hinge modified-to-remove cysteines, within a retroviral vector. This example IgTCR molecule (using hMN14 antibody specific to CEA antigen, not part of this application) occupies nucleotides 2428 to 3756. (Sequences #1, 2; the vector sequences are incidental.) Equivalent versions using the antibodies MB3.6, 3D8, 4D4, 3E11 are prepared in analogous manner to create IgTCR, or other Ig-chimeric molecules.

Fig.4 (presently amended) shows the DNA sequence of:

A., B. leader plus VH (seq. #3, 4) and leader plus VL (seq. #5, 6) that specifies MB3.6.

C. As example, the VL and leader are joined with (GGSGS)3 linker to VH to create MB3.6 sFv as shown (seq. #7, nucleotides shown for amino acid seq (GGSGS)3), that is subsequently used in creating chimeric molecules. Other means of generating sFv are possible and included under this claim, as well as other means of creating antibody chimeric molecules under the intent of this invention.

D., E. leader plus VH (seq. #8, 9) and leader plus VL (seq. #10, 11) that specifies 3D8 (includes C domain sequences).

F., G. leader plus VH (seq. #12, 13) and leader plus VL (seq. #14, 15) that specifies 4D4 (includes C domain sequences).

H., I. leader plus VH (seq. #16, 17) and leader plus VL (seq. #18, 19) that specifies 3E11 (includes C domain sequences).

These sequences are modified to prepare the sFv used in Fig.1 and Fig.3, and similarly for other constructs.